

U.S.-China Economic and Security Review Commission

Economics and Trade Bulletin



October 7, 2016

Highlights of this Month's Edition

- **Bilateral trade:** U.S. deficit with China widens in August 2016 on higher imports, but cumulative deficit down year-to-date.
- **Bilateral policy issues:** Under China's presidency, leaders at the G20 Summit in Hangzhou pledged to strengthen macroeconomic policy coordination to maintain global growth, but failed to issue concrete proposals; the USTR is challenging China's excessive government support for rice, corn, and wheat production at the WTO.
- **Policy trends in China's economy:** The decreasing efficiency of new credit, the speed with which China is accumulating debt, and the rise of nonperforming loans are contributing to China's vulnerability to a banking crisis; McDonald's and Yum! Brands to sell rights to operate in China as U.S. fast food restaurants face stagnant growth in China.
- **Sector focus – Rice, Corn, and Wheat:** Chinese support for domestic farmers creates world's largest stockpile of grain and may cost U.S. wheat farmers \$650 million annually; U.S. rice farmers gain access to Chinese market for the first time; U.S. corn exports declined 91 percent from 2012 to 2015 as China blocked shipments of U.S. corn in 2014 and started diversifying its corn imports.

Bilateral Goods Trade

Deficit Up in August on Import Increases, but YTD, Deficit Continues to Shrink

In August 2016, the United States goods trade deficit with China was \$33.9 billion, an 11.6 percent increase over July 2016, but a decline of 3.2 percent year-on-year (see Table 1). For the first eight months of 2016, the cumulative deficit stood at \$225.2 billion, down 5.7 percent from the same period in 2015. Though in August 2016, exports grew 2.4 percent year-on-year, imports continued to decline, falling 2 percent over August 2015. Year-to-date, trade with China has been on the decline, with cumulative exports down 6.3 percent year-on-year, and imports down 5.8 percent.

Table 1: U.S. Goods Trade with China, January–August 2016

(US\$ billions)

	Jan	Feb	Mar	Apr	May	June	July	Aug
Exports	8.2	8.0	9.0	8.7	8.5	8.8	9.2	9.4
Imports	37.1	36.2	29.9	33.0	37.5	38.6	39.5	43.3
Balance	(28.9)	(28.1)	(20.9)	(24.3)	(29.0)	(29.8)	(30.3)	(33.9)
<i>Balance YTD</i>								
2015	(29.1)	(51.9)	(83.2)	(110.0)	(140.3)	(172.1)	(203.8)	(238.8)
2016	(28.9)	(57.0)	(77.9)	(102.2)	(131.2)	(161.0)	(191.4)	(225.2)

Source: U.S. Census Bureau. <http://www.census.gov/foreign-trade/balance/c5700.html>.

Bilateral Policy Issues

Hangzhou G20 Summit

On September 4–5, 2016, China hosted the 11th G20 Summit, an annual meeting of leaders from the 20 largest economies, in Hangzhou.* Beijing viewed its first time hosting the G20 Summit as a high-profile opportunity to showcase China’s leadership on the world stage and promote its vision for the global economy.† 1

The G20 Summit’s final communique was a broad consensus document organized around five themes: policy coordination, innovation-driven growth, economic and financial governance, trade and investment, and sustainable development.2 While the communique covered a wide range of issues, its decisions were mainly incremental and lacked concrete and measurable actions.3 Key issues addressed in the final communique include:

- *Maintaining global economic growth and open trade:* G20 leaders called on countries to use all policy tools—monetary, financial, and structural—to generate greater global growth. They also adopted action plans on innovation and the “new industrial revolution,” two areas expected to provide the basis for future growth.4 G20 leaders defended open trade, reaffirming their “opposition to protectionism on trade and investment in all its forms.”5 They also adopted the Guiding Principles for Global Investment Policymaking, laying out basic principles for how countries should treat foreign direct investment.6
- *Creating the foundation for an international tax system:* In an effort to address tax evasion and improve transparency, G20 countries and Organisation for Economic Co-Operation and Development (OECD) members developed the Inclusive Framework on Base Erosion and Profit Shifting (BEPS), a package of measures governments can implement to close gaps in tax rules. G20 leaders called for the implementation of the BEPS package and endorsed a proposal to identify countries that fail to meet specified criteria for tax transparency. They noted “defensive measures will be considered against listed jurisdictions.”7
- *Resolving global excess capacity in industrial sectors:* G20 leaders recognized that excess capacity in steel and other industries is a global issue that requires a collective response. The G20 agreed to set up an OECD-facilitated global forum on steel excess capacity, which will share information and produce a progress report in 2017.8
- *Reforming governance arrangements at the International Monetary Fund (IMF) and World Bank:* G20 leaders called for a new IMF quota formula—to be developed before the 2017 Annual Meetings—to reflect increased shares for emerging and developing countries “in line with their relative positions in the world economy.”9 Similarly, the statement called for the World Bank to implement its shareholding review “with the objective of achieving equitable voting power over time.”10

On September 3, ahead of the G20 Summit, President Barack Obama met with Chinese President and General Secretary of the Chinese Communist Party Xi Jinping. The top outcome was the announcement that the United States and China formally joined the 2015 Paris Agreement on Climate Change, putting the agreement within reach of entering into force this year.‡ 11 On cybersecurity, the two countries reaffirmed their commitment to fully implement the September 2015 cyber commitments, including not conducting cyber-enabled theft of intellectual

* The Group of Twenty (G20) is an international forum for governments and central banks from 20 major countries to meet and discuss international financial stability issues. Members include Argentina, Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, and the United States. International organizations such as the Financial Stability Board, International Labor Organization, International Monetary Fund, Organisation for Economic Co-Operation and Development, World Bank, World Trade Organization, and the UN also participate. G20 2016 China, “About G20,” November 2015. http://www.g20.org/English/aboutg20/AboutG20/201511/t20151127_1609.html.

† For more on China’s G20 priorities, see U.S.-China Economic and Security Review Commission, *Economic and Trade Bulletin*, September 2, 2016. <http://origin.www.uscc.gov/sites/default/files/Research/Sept%202016%20Trade%20Bulletin.pdf>.

‡ The Paris Agreement enters into force when 55 countries representing at least 55 percent of global emissions finalize their domestic processes for joining the agreement; together, China and the United States account for about 40 percent of the world’s carbon dioxide emissions. Eliza Northrop and Melisa Krnjaic, “US and China Join Paris Agreement, Bringing It Much Closer to Taking Effect,” *World Resources Institute*, September 3, 2016. www.wri.org/blog/2016/09/; Alicia Parlapiano, “Climate Goals Pledged by China and the U.S.,” *New York Times*, October 2, 2015. www.nytimes.com/interactive/2014/11/12/world/asia/climate-goals-pledged-by-us-and-china-2.html.

property for commercial gain.¹² On counternarcotics, China agreed to target exports of substances controlled in the United States, even if they are not controlled in China.*¹³

United States Challenges Chinese Agricultural Subsidies

On September 13, 2016, the United States brought a trade complaint against China at the WTO regarding “excessive” government support provided for rice, wheat, and corn production.¹⁴ According to the Office of the U.S. Trade Representative’s (USTR) analysis, the value of China’s price support for rice, wheat, and corn last year was nearly \$100 billion in excess of its commitments under the WTO Agreement on Agriculture.¹⁵ Through its “market price support” programs, China annually sets minimum prices at which the government purchases rice, wheat, and corn in major producing provinces during the harvest season.¹⁶ The USTR alleged that since 2012, China has maintained domestic prices at levels “substantially” above its WTO commitment to cap levels of domestic support at 8.5 percent of the value of production.¹⁷

China’s use of agricultural subsidies influences domestic production decisions and hurts the ability of U.S. agricultural producers to compete in China and around the world.¹⁸ The United States is the world’s largest agricultural producer. In 2015, China was the United States’ second-largest agricultural export market, with U.S. agricultural exports to China totaling over \$20 billion.¹⁹ The USTR estimates U.S. rice, wheat, and corn exports contribute an additional \$70 billion to the U.S. economy annually and support 200,000 U.S. jobs.²⁰

In a preliminary ruling on September 23, China’s Ministry of Commerce imposed antidumping duties on U.S. shipments of distillers’ dried grains, a byproduct of corn ethanol used for livestock feed, heightening tensions over bilateral agricultural trade.²¹ China claimed U.S. production of distillers’ dried grains is being unfairly subsidized and has caused injury to China’s domestic industry.²² The U.S. Grains Council, Growth Energy, and the Renewable Fuels Association said in joint statement that U.S. distillers’ grain producers have not harmed Chinese producers; rather, U.S. producers “play an important role in protecting Chinese feed producers and households against unpredictable swings in global commodity prices.”²³ China is the world’s top buyer of distillers’ dried grains, importing almost all of its distillers’ grains from the United States as a substitute for more expensive domestic corn in animal feeds.²⁴

In a positive development, on September 22 China removed a ban on imports of some U.S. beef products.†²⁵ China’s ban on imports of U.S. beef has been in place since 2003, following an outbreak of mad cow disease in the United States.²⁶ China’s beef imports have surged in recent years, fueled by a rising middle class. According to the U.S. Department of Agriculture, China is expected to import 825,000 tons of beef in 2016, up 24 percent from the previous year.²⁷

Policy Trends in China’s Economy

Risks Grow in China’s Banking Sector

In September 2016, the Bank of International Settlements (BIS) released new data on China’s rapidly increasing credit-to-gross-domestic-product (GDP) gap,‡ a measure of debt buildup, raising yet another indicator of China’s debt troubles.²⁸ Since the rollout of China’s 2008–2009 \$587 billion (renminbi [RMB] 4 trillion) stimulus package and loosening of restrictions on local government borrowing, China’s total debt-to-GDP ratio has grown from 151.3

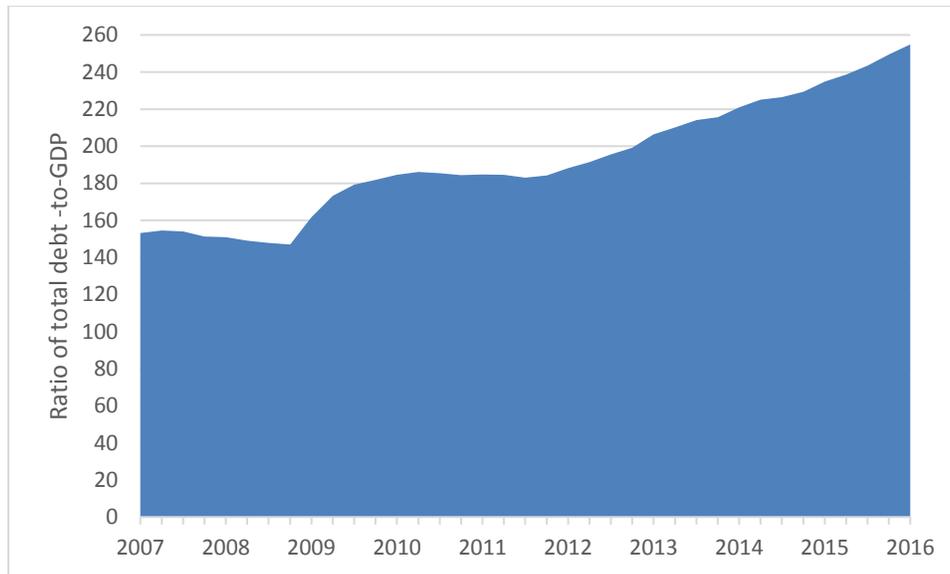
* Flows of precursor chemicals from China to the United States is a persistent problem. For background on the scope of meth precursor chemical flows from China and their implications for the United States, see Sean O’Connor, “Meth Precursor Chemicals from China: Implications for the United States,” *U.S.-China Economic and Security Review Commission*, July 18, 2016. http://origin.www.uscc.gov/sites/default/files/Research/Staff%20Report_PrecursorChemicalReport%20071816_0.pdf.

† According to China’s General Administration of Quality Supervision, Inspection and Quarantine, the ban on imports of U.S. bone-in beef and boneless beef from livestock under 30 months has been removed. China’s General Administration of Quality Supervision, Inspection and Quarantine, *Announcement of the Ministry of Agriculture and General Administration of Quality Supervision, Inspection and Quarantine on Removing the Ban on Imports of U.S. Beef for Cattle Under 30 Months*, September 22, 2016. Staff translation. http://www.aqsiq.gov.cn/xxgk_13386/zxxgk/201609/t20160922_474397.htm.

‡ The credit-to-GDP gap is the difference between the credit-to-GDP ratio and the credit-to-GDP’s long-term trend. Analysis requires at least ten years of data and is based on the total credit to the private nonfinancial sector.

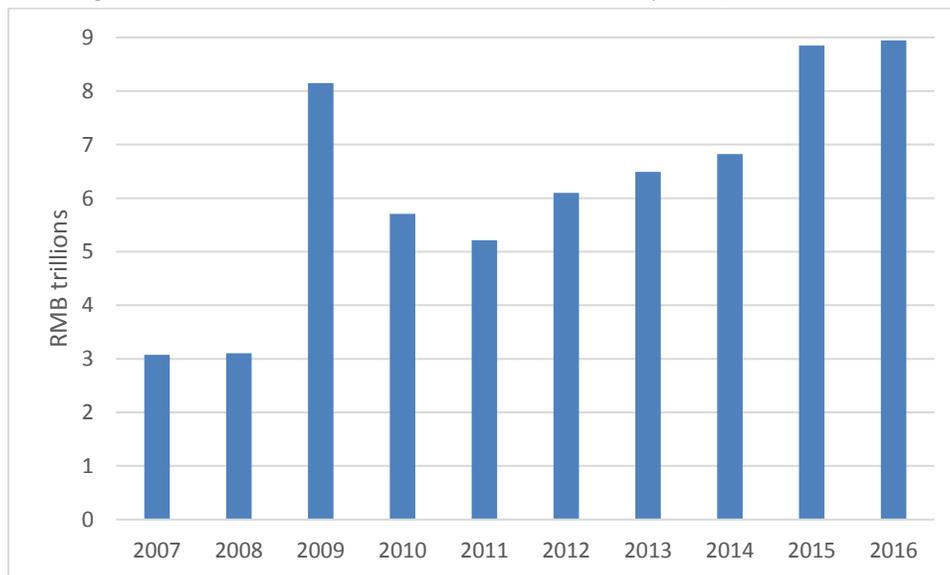
percent in 2007 to 254.9 percent in the first quarter of 2016, reaching \$27.2 trillion, according to BIS data (see Figure 1).²⁹ The amount of new lending in 2015 and 2016 spiked as the Chinese government sought to boost its slowing economy through investment (see Figure 2). However, even as the government ramps up investment, the efficiency of this investment has deteriorated. The international ratings agency Fitch Ratings estimates that each new RMB of credit generates only RMB 0.3 of economic growth, a decrease from RMB 0.8 prior to the global financial crisis.³⁰

Figure 1: China’s Total Debt-to-GDP Ratio, 2007–1Q 2016



Source: Bank of International Settlements, “Long Series on Total Credit to the Non-Financial Sectors,” September 8, 2016.

Figure 2: New Loans in China’s Banks, January–August 2007–2016

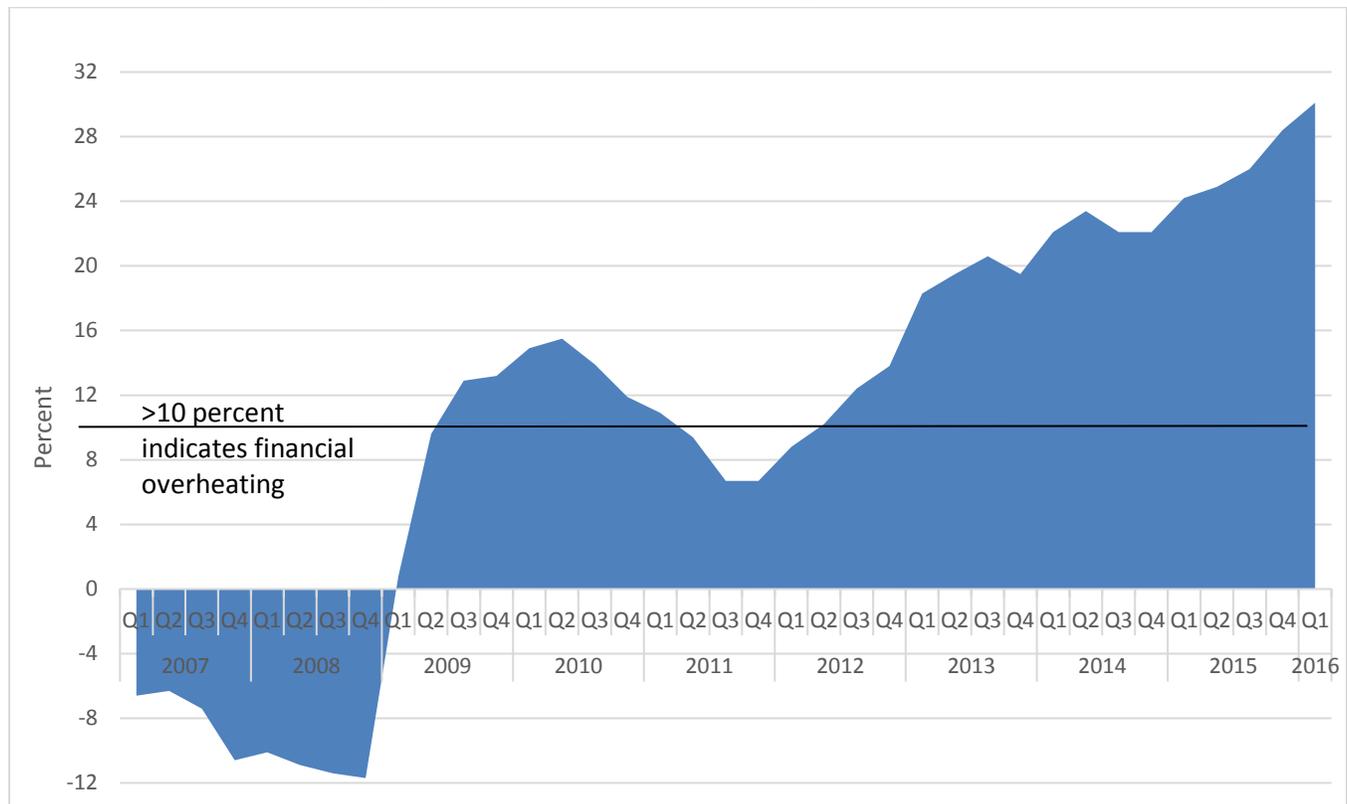


Source: People’s Bank of China via CEIC.

Investors are concerned about the speed of China’s debt accumulation, especially given its slowing economy. According to new data from BIS, China’s credit-to-GDP gap reached 30.1 in the first quarter of 2016 (see Figure 3).³¹ Based on BIS research, a credit-to-GDP gap over 10 is an early indicator of financial overheating. Prior to the 1997 Asian financial crisis, Thailand’s credit-to-GDP gap in 1995 and 1996 averaged 26.3 percent.³² In the United States, the credit-to-GDP gap roughly doubled from 6.9 percent in 2004 to a high of 12.4 percent at the end of 2007,

months before the global financial crisis began.³³ Similarly, Ireland’s credit-to-GDP gap prior to the global financial crisis grew from 6.1 percent in the first quarter of 2003 to 48.4 percent at the end of 2007.³⁴ While some countries have maintained credit-to-GDP gap ratios over 10 percent without incurring a crisis (the Netherlands* is one example), Fitch Ratings noted that “the longer debt grows, the greater the risk of asset quality and liquidity shocks to the banking system.”³⁵

Figure 3: China’s Credit-to-GDP Gap, 2007–Q1 2016

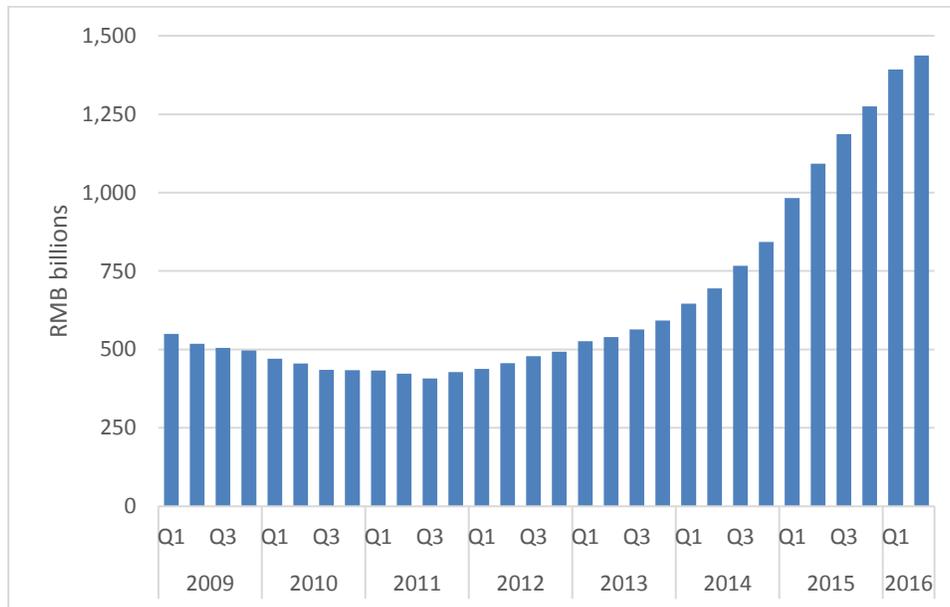


Source: Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.

Nonperforming loans (NPLs), while still a small share of total loans, are also increasing, raising the credit risk for China’s commercial banks. According to data from the China Banking Regulatory Commission, the amount of NPLs held by China’s commercial banks grew more than two-fold from \$64.7 billion (RMB 433.3 billion) in the first quarter of 2011 to \$214.5 billion (RMB 1.4 trillion) in the second quarter of 2016 (see Figure 4).³⁶ Over that same time period, the share of NPLs as a percentage of total loans increased from 0.88 percent to 1.42 percent.³⁷ Estimates by Fitch Ratings place the amount of NPLs much higher, at around 15–21 percent at the end of 2015.³⁸ Fitch Ratings noted that Chinese banks were moving NPLs off their balance sheets through wealth management products with increased frequency, and were reclassifying NPLs as interbank credit, in essence masking the true magnitude of the NPL problem.³⁹

* From 1998 to 2002, the Netherlands maintained a credit-to-GDP gap above 10 percent that gradually decreased, but its banking crisis occurred in 2008 due to the earlier buildup of credit and the interconnectedness of the global financial system. Mathias Drehmann and Kostas Tsatsaronis, “The Credit-to-GDP Gap and Countercyclical Capital Buffers: Questions and Answers,” *Bank for International Settlements*, March 9, 2014. 66. http://www.bis.org/publ/qtrpdf/r_qt1403g.htm.

Figure 4: Non-Performing Loans Held by China’s Commercial Banks, 2009-Q2 2016



Source: China Banking Regulatory Commission via CEIC.

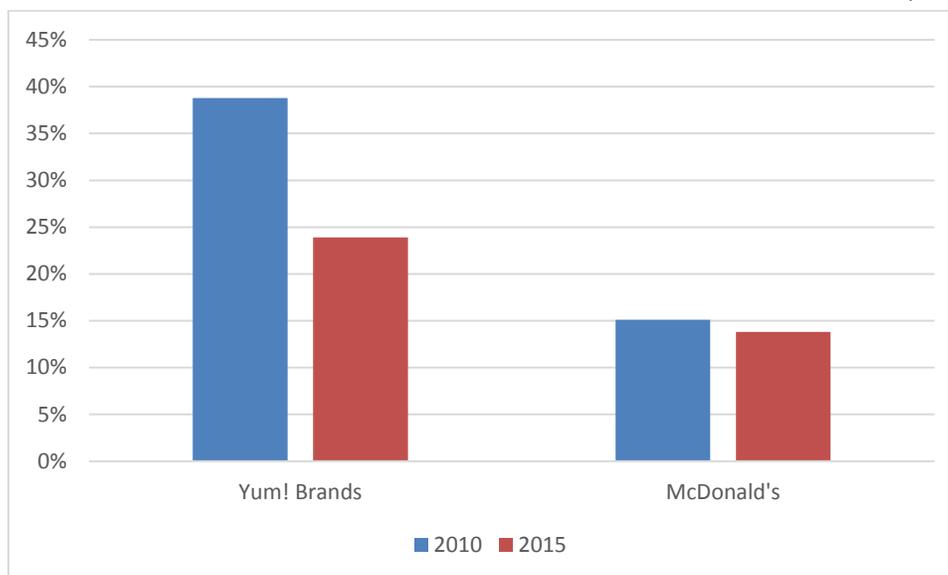
Despite these worrying indicators, China’s tight capital controls, large foreign reserves, and high savings rates ensure limited direct global exposure and enable the Chinese government to manage existing debt obligations. Fitch Ratings noted that “the dominance of the state-owned banks and the fact that they are funded overwhelmingly by deposits mitigate against a financial crisis.”⁴⁰ However, in order to prevent an increase in debt beyond its ability to manage it, the Chinese government needs to implement financial sector reforms that will improve the efficiency of capital allocation and reduce debt overhang.⁴¹

U.S. Fast Food Sellers Pulling out of China

McDonald’s and Yum! Brands, the parent company of KFC, Pizza Hut, and Taco Bell, are selling their rights to operate in China and Hong Kong amid stagnant market share growth.⁴² After publicizing plans to spin off its China operations in October 2015, Yum! announced in September 2016 it will sell part of its China division to the private equity funds Primavera Capital Group and the Alibaba-affiliated Ant Financial Services Group.⁴³ Meanwhile, in March 2016 McDonald’s laid out plans to sell 20-year franchise rights for around 1,500 existing restaurants in China, South Korea, and Hong Kong.⁴⁴ The strategy allows McDonald’s to maintain branding and product development rights in existing and new restaurants while forfeiting ownership rights.⁴⁵ Potential bidders for the McDonald’s plan include China National Chemical Corp, China Cinda Asset Management Corp, Beijing Capital Tourism Co., and hotel chain operator GreenTree Inn.⁴⁶ With U.S. chains facing slowing growth and decreasing market share in China, investors hope the decision to sell in China will enable the companies to react more nimbly to changes in the market and more effectively anticipate new consumer habits and tastes.⁴⁷

After decades of lucrative operations in China, Yum! and McDonald’s have seen their shares of the Chinese market stagnate and the country’s operating environment grow more challenging in recent years.⁴⁸ Yum! entered China in 1987 with the opening of the country’s first KFC restaurant in Beijing, while McDonald’s entered three years later in Shenzhen.⁴⁹ Yum! currently operates around 5,000 KFCs and 3,000 Pizza Huts in China, accounting for over half of the company’s global revenue and profit, while McDonald’s has 2,200 locations in China that account for 5 percent of its global revenue.⁵⁰ However, Yum!’s market share of fast food restaurants in China has decreased from 38.8 percent in 2010 to 23.9 percent in 2015 (see Figure 5).⁵¹ Over the same period, the McDonald’s market share of fast food restaurants in China has also declined from 15.1 percent to 13.8 percent.⁵²

Figure 5: Yum! and McDonald's Market Share of Fast Food Restaurants in China, 2010 vs. 2015



Source: Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.

Yum! in particular has encountered problems operating in China due to a series of food scandals. Most notably, in 2012 media reports indicated KFC chicken suppliers had abused antibiotics and growth hormones to accelerate the chickens’ growth, a revelation that led to outrage among Chinese consumers.⁵³ Two years later, workers at a meat supplier for KFC and McDonald’s were discovered reusing meat that had fallen to the factory floor, as well as mixing expired meat into its products.⁵⁴ Yum! executives have also cited operational mistakes, such as offering high-price, low-quality steak and meat products, as factors contributing to the decline of the company’s market share in China.⁵⁵

In addition to health scandals, U.S. fast food restaurants are losing market share in China because of the country’s rising income levels and increased local competition.⁵⁶ When McDonald’s and Yum! first opened in China, Western cuisine was seen as a delicacy, with Chinese consumers visiting fast food restaurants for special occasions.⁵⁷ However, the annual household disposable income for Chinese urban residents has increased rapidly in recent years, nearly doubling from 2009 levels to more than \$3,500 in 2015, expanding the average Chinese consumer’s ability to dine at higher-quality restaurants.⁵⁸ At the same time, competing local restaurants have begun expanding their locations and reducing prices. For example, the Taiwan-owned fried-chicken chain Dicos rolled out 948 restaurants in China between 2011 and 2013, and was operating more than 2,000 stores across China in 2015.*⁵⁹ As a result, U.S. fast food restaurants in China are increasingly seen as both low quality and low value in comparison to competing restaurants.⁶⁰ A 2014 survey by the consumer survey firm Millward Brown, for example, found that less than 25 percent of Chinese people described Pizza Hut as a “desirable brand,” down from 39 percent in 2012.⁶¹

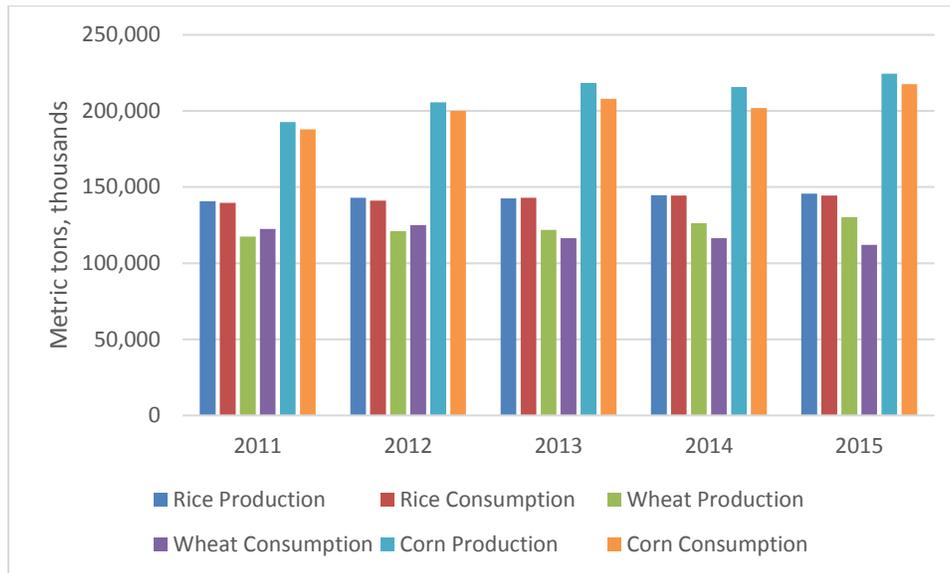
Sector Focus: Corn, Wheat, and Rice

China has traditionally practiced a policy of agricultural self-sufficiency, particularly with respect to cereal crops. As seen in Figure 6, in recent years Chinese production of rice, wheat, and corn generally either met or exceeded domestic consumption. For example, in 2015 the U.S. Department of Agriculture (USDA) estimated that China’s wheat production totaled 130 million metric tons, but domestic consumption was only 112 million metric tons.⁶²

* Ting Hsin International Group, the Taiwan conglomerate that owns Dicos, had the third-largest share (7.7. percent) of China’s fast food market in 2015, behind Yum! at 23.9 percent and McDonald’s at 13.8 percent. Bloomberg News, “China Starts to Lose its Taste for McDonald’s and KFC,” August 3, 2016. <http://www.bloomberg.com/news/articles/2016-08-03/china-starts-to-loses-its-taste-for-mcdonald-s-and-kfc>.

This resulted in an 18 million metric ton domestic surplus, an amount almost as large as total U.S. exports of wheat worldwide during the 2015 season (21.8 million metric tons).⁶³

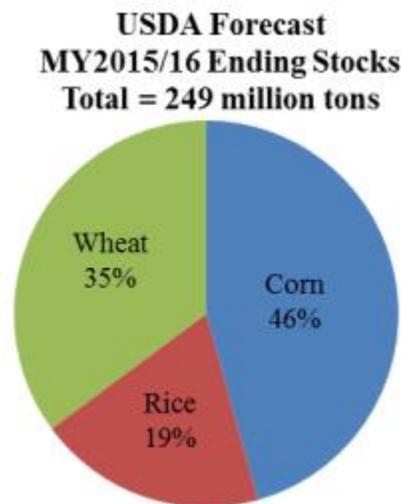
Figure 6: Estimated Chinese Production and Consumption of Rice, Wheat, and Corn, 2011-2015



Source: United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.

Chinese rice, wheat, and corn farmers are encouraged to expand production by government policies, including subsidies and minimum price floors. Through minimum price supports, the Chinese government has purchased grains at prices higher than international levels and then stored them for sale at auction.⁶⁴ While in theory the grain is auctioned off to consumers and producers, in many cases state grain auctions do not sell, possibly due to high prices demanded by government officials to avoid selling at a loss or concerns about the quality of the grain being sold.⁶⁵ As a result, China’s store of grain has swelled to nearly 250 million tons (Figure 7), equal to roughly half of the world’s total stockpile of grain.⁶⁶

Figure 7: Estimated Chinese Grain Reserves



Source: United States Department of Agriculture, “China Grain and Feed Update,” February 5, 2016. http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Update_Beijing_China%20-%20Peoples%20Republic%20of_2-5-2016.pdf.

Managers of China’s grain reserves receive a subsidy of RMB 100 per ton per year for storing the grain, incentivizing them to retain their grain stock.⁶⁷ Chinese farmers also receive subsidies for grain production.⁶⁸ A study commissioned by U.S. Wheat Associates estimated that combined Chinese support for rice, wheat and corn in 2014 ranged from \$48 billion to \$110 billion.⁶⁹ This estimated level of support would exceed the cap on agricultural subsidies China agreed to under the WTO.⁷⁰ In 2014, WTO caps on China’s agricultural support for these three crops were estimated at roughly \$19 billion: \$6.7 billion for corn, \$4.3 billion for wheat, and \$8.2 billion for rice.⁷¹

Despite cereal overproduction and the world’s largest grain stockpile, China imports rice, wheat, and corn from other countries and its imports have increased over time. International grain prices are generally lower than Chinese prices, which makes imports attractive to Chinese suppliers.⁷² However, as allowed under its WTO accession protocols, the Chinese government has placed limits on how much grain can enter the country at low tariff rates. As shown in Table 2, China assigns tariff-rate quotas to imports of rice, wheat, and corn. Under this system, grain entering China is taxed at 1 percent until total imports have reached an assigned quota (for example, 5.32 million metric tons for rice). After this total has been reached, all subsequent imports are charged at a prohibitively higher rate (65 percent for rice, wheat, and corn).⁷³

Table 2: Chinese Cereal Tariff Rate Quotas, 2016

Crop	Low-Tariff Quota (Metric tons, millions)	Tariff Applied to Imports Above Quota
Rice	5.32	65%
Wheat	9.636	65%
Corn	7.2	65%

Source: “China Sets 2016 Wheat, Corn, Rice, and Cotton Import Quotas, -NDRC,” Reuters, September 30, 2015. <http://af.reuters.com/article/commoditiesNews/idAFB9N10E02Q20150930>.

According to industry analysts, the opportunity to import low-tariff grain is not fully utilized. According to the U.S. Wheat Associates, 90 percent of the imported low-tariff wheat quota is reserved for state trading entities, with the remaining 10 percent available for private buyers. The quota allocated to state entities is reportedly rarely used to actually import wheat. As a result, overall utilization of China’s wheat import quota may be as low as 23 percent, which results in fewer opportunities for U.S. firms to export to the Chinese market.⁷⁴

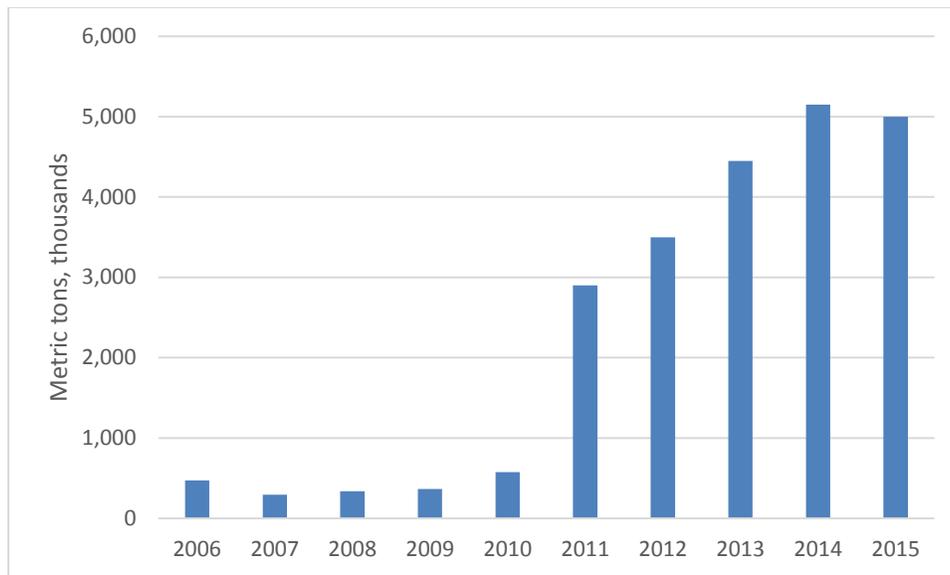
The USDA reports that 60 percent of low-tariff corn has been directed to state-owned entities as well, leaving hundreds of private companies to compete for the remainder.⁷⁵ According to Liu Yonghao, CEO of New Hope Group, China’s largest feed company, a single corn shipment should be at least 50,000 tons to be commercially viable; however, after the quotas have been assigned to state traders, there can be as few as 90,000 tons of corn quotas available to private companies per province. Liu claims that private companies cannot obtain sufficiently large quotas to profitably import grain.⁷⁶ It is also possible that Chinese authorities may see allocation of quotas as a way to control trade flows. Chinese authorities have referred to “management of tariff-rate quotas,” as one of the measures used to actively manage import flows.⁷⁷ Further details on the trade and production of each grain are provided below.

Rice

While China still sources the majority of its rice from domestic supplies, as shown in Figure 8, Chinese rice imports have increased dramatically since 2011. From 2006 to 2015, Chinese annual rice imports increased from 472,000 metric tons to 5 million metric tons, almost a ten-fold increase.⁷⁸ Imports of rice show a pronounced jump in between 2010 and 2011, likely due to an increase in the Chinese government purchase price for domestic rice, which made domestic rice relatively more expensive than imports. From 2007 to 2012 the Chinese government raised its minimum purchase price for rice five times, and in 2012, the minimum purchase price increased by roughly 18 percent.⁷⁹ By 2013 imported Vietnamese rice was nearly 30 percent cheaper at Chinese ports than domestic rice.⁸⁰ Despite this significant increase, imported rice still only accounted for an estimated 3.4 percent of China’s overall domestic consumption.⁸¹ Nevertheless, since China is the world’s largest consumer of rice, even small slices of the Chinese market account for large portions of international rice trade. Since 2012, China has become the world’s

largest rice importer.⁸² Had the United States captured all of China’s rice imports in 2015 it would have accounted for roughly 9 percent of total U.S. rice exports.⁸³

Figure 8: Estimated China Rice Imports, 2006–2015



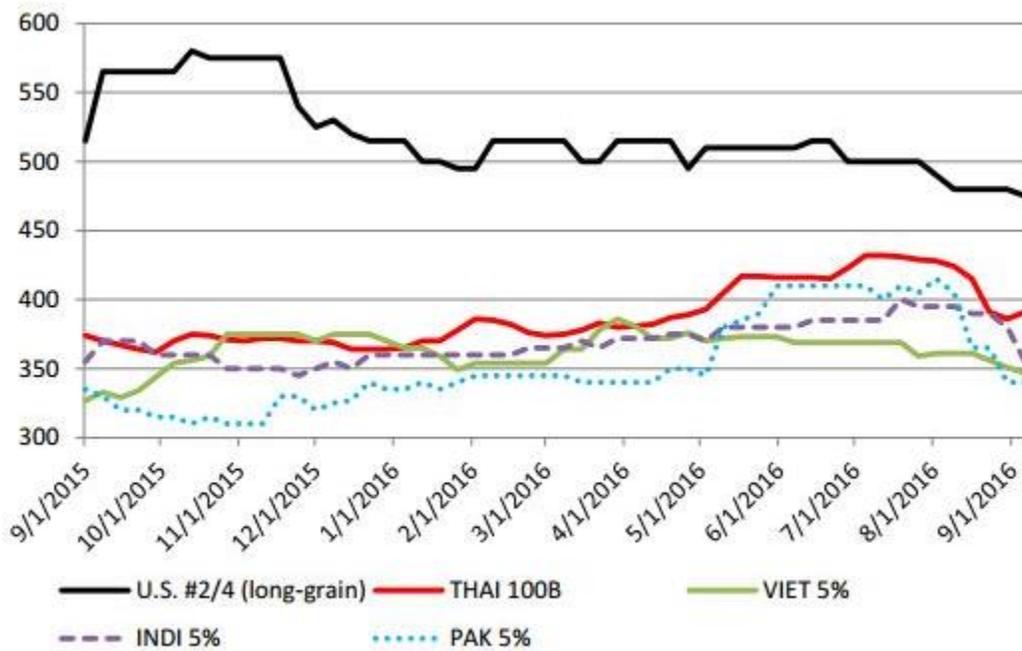
Note: Years listed are reported in trade year format which runs from August to July for rice imports.

Source: United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.

With the exception of a few small shipments between 2007 and 2009, historically the United States has not exported rice to China.⁸⁴ Until recently, U.S. rice exporters have been unable to ship their crop to China due to Chinese food safety standards. After China joined the WTO, the United States and China were unable to reach a health and safety protocol on rice, preventing U.S. farmers from gaining access to the Chinese market. Chinese negotiators reportedly insisted on strenuous insect-trapping and documentation requirements that the United States regarded as obtrusive and unworkable.⁸⁵ In January 2016, China and the United States agreed on a health and safety protocol that established procedures for U.S. rice to enter China, granting U.S. rice farmers significant market access to China for the first time since China’s WTO accession.⁸⁶

Even with the restrictions finally removed, U.S. rice exports to China will face competition. As seen in Figure 9, U.S. rice exports are more expensive than exports from India, Vietnam, and Thailand. According to the U.S. Rice Producers Association, China currently sources most of its rice imports from Vietnam on the basis of price, proximity, and quality.⁸⁷ Other top exporters to China include Burma, Pakistan, and Thailand.⁸⁸ U.S. rice growers have not yet begun shipping rice to China, but hope the United States can compete on the basis of safety and quality.⁸⁹ Concerns about the safety of China’s domestic rice supply have increased recently. In 2013, the Guangdong provincial government reported that 44 percent of its tested rice samples contained excessive levels of cadmium.⁹⁰ In 2014, Greenpeace tested rice crops grown next to heavy metal smelters in Hunan—China’s top rice growing region—and reported 12 out of 13 tested positive for excessive cadmium.⁹¹

Figure 9: U.S. and International Rice Export Prices, 2015–2016
(US\$/metric ton)

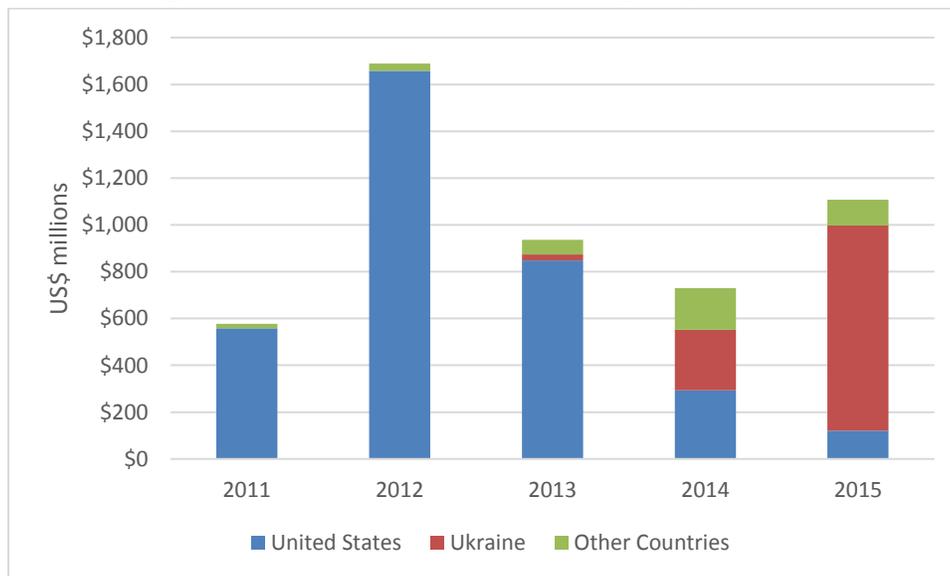


Source: United States Department of Agriculture, *China's Growing Demand for Agricultural Imports*, February 2015, 10. <http://www.ers.usda.gov/media/1784488/eib136.pdf>.

Corn

Chinese imports of corn increased significantly beginning in 2010. As seen in Figure 10, the United States provided the majority of Chinese imports from 2011 to 2013, with a sharp decline in market share from 2014 on. From a peak of 5.1 million metric tons in 2012, U.S. corn exports to China fell precipitously to 461,000 metric tons in 2015. Based on UN estimates, U.S. corn exports to China dropped 91 percent from 2012 to 2015.⁹²

Figure 10: Estimated Chinese Corn Imports, 2011–2015



Source: United Nations Commodity Trade Database. <http://comtrade.un.org/db/ce/ceSearch.aspx>.

U.S. shipments of corn to China appear to have dropped due to Chinese safety restrictions and a shift in sourcing to Ukrainian suppliers. In November 2013, the Chinese government began routinely turning away U.S. shipments of corn on the basis that they contained a genetically modified strain known as MIR 162 that had not been approved for use in China.⁹³ The ban ran until December 2014 when Chinese regulators issued a safety certificate for MIR 162, allowing corn shipments to resume.⁹⁴ During the ban at least 1.45 million metric tons of U.S. corn was turned away at the Chinese border, and as of April 2014 the National Grain and Feed Association estimated that \$2.9 billion worth of U.S. agricultural export opportunities to China had been lost due to Beijing's ban on MIR 162 corn.⁹⁵ Consumption of GMO food is controversial in China. Chinese producers are currently prohibited from growing GMO crops and imported GMO grains can only be used for processing or animal feed.⁹⁶

The Chinese government has also taken steps to diversify its corn imports to other countries, notably Ukraine. In 2012, China established a \$3 billion loan-for-crops agreement with Ukraine, under which Ukraine would receive credit lines in exchange for providing Beijing with a reported 3 million metric tons of corn per year.⁹⁷ If fully utilized, this supply of corn would have constituted more than 50 percent of China's corn imports in 2012, its peak year for corn imports.⁹⁸ The total amount of corn shipped to China under this scheme has been contested. In February 2014, Russian media reported that only \$150 million worth of grain had been shipped and that China had requested the loan amount back for nonpayment.⁹⁹ Representatives from both China and Ukraine denied this account. Reuters reported that Ukraine provided 1 million metric tons of corn to China under the program during 2014.¹⁰⁰ In 2015, according to grain traders, U.S. corn was roughly \$13 per metric ton cheaper than Ukrainian corn, however 79 percent of China's corn imports came from Ukraine, compared to 11 percent for the United States.¹⁰¹ Some analysts have suggested that increased cereal imports from Eastern Europe would align with China's "One Belt, One Road" initiative's goal of improving economic linkages between China and Europe.¹⁰²

As seen in Figure 10, Ukrainian corn exports to China have surged as U.S. exports have declined. According to UN trade statistics, Ukrainian corn exports to China have increased from 111,000 metric tons worth \$26 million in 2013 to 3.1 million metric tons in 2015 worth \$543 million.¹⁰³

Until March 2016, China supported domestic corn providers through a price support system that required the government to purchase corn at a minimum price, sometimes as high as 50 percent over market price.¹⁰⁴ Auctions of this grain regularly failed to sell leaving the government with a large stockpile.¹⁰⁵ According to a USDA estimate, China's corn stockpile may be 109 million metric tons, a little more than half of total global corn reserves.¹⁰⁶ Chinese analysts have placed the stockpile at as high as 250 million metric tons.¹⁰⁷ The quality of this stockpile has been questioned. Recent Chinese corn auctions have featured corn up to four years old and have been limited to industrial processing, suggesting that some of the store is unfit for human consumption.¹⁰⁸ Chinese state media has also reported that Chinese officials have purchased discounted old and inferior grain while reporting it as new grain purchased at state prices and pocketing the difference. This inferior grain then enters China's stockpile.¹⁰⁹ The Chinese government abandoned this minimum price system for corn in March 2015, in favor of direct subsidies to farmers during price shocks.¹¹⁰

Wheat

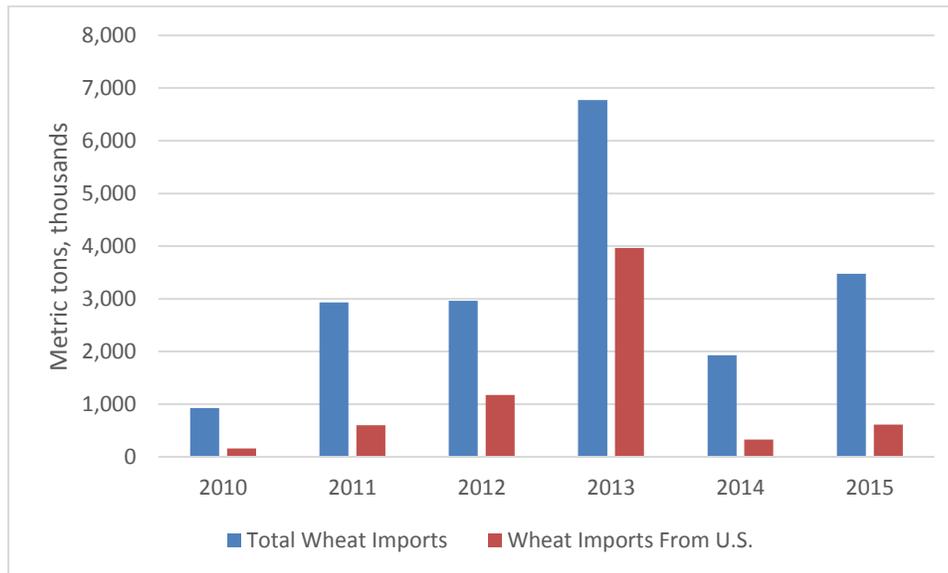
China is the world's largest producer of wheat, growing 126.2 million metric tons of wheat in 2014, roughly 17 percent of the global harvest.¹¹¹ China is also the largest user of wheat, consuming 116.5 million metric tons in 2014. However, in recent years China has produced more wheat than it has consumed, resulting in a large government stockpile.¹¹² The Chinese government supports domestic wheat production by buying wheat at minimum prices and stockpiling the grain it cannot sell at auction.¹¹³ The USTR and U.S. wheat industry assert that China's wheat price support harms U.S. export opportunities by artificially inflating Chinese wheat production.¹¹⁴ A study commissioned by U.S. Wheat Associates argued that Chinese price support policies cost U.S. wheat farmers \$650 million annually due to lost export opportunities and depressed wheat prices.¹¹⁵ As a result of its price support system, China's stockpile of wheat has grown dramatically. The USDA estimates China's wheat stock at 97 million tons, accounting for 40 percent of global wheat reserves.¹¹⁶ The United Nations Food and Agriculture Organization (FAO) recommends keeping stores worth 17 to 18 percent of annual grain consumption to stabilize food prices

* For more on GMOs in China, see U.S.-China Economic and Security Review Commission, *Economics and Trade Bulletin*, March 4, 2016. http://origin.www.uscc.gov/sites/default/files/trade_bulletins/Mar%202016%20Bulletin.pdf.

during shortages,¹¹⁷ meaning China’s wheat stockpile—currently equivalent to 87 percent of Chinese annual wheat consumption and a full 13 percent of global wheat consumption—is far in excess of FAO recommendations.¹¹⁸

Despite high domestic wheat production and a large reserve, China imports wheat from other countries, with the United States accounting for a sizable share of imports as seen in Figure 11. U.S. wheat exports to China spiked during the 2013 season when they accounted for around 55 percent of total wheat imports.¹¹⁹ In early 2013 rain and frost made an estimated 16 percent of China’s wheat crop unfit for human consumption, which likely contributed to China’s increased demand for wheat imports.¹²⁰

Figure 11: Estimated Chinese Wheat Imports, 2010--2015



Note: Years listed are reported in trade year format which runs from July to June for wheat imports.

Source: United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.

China has also worked to open new sources of wheat imports in Eurasia. In June 2016, Russia and China signed a memorandum of understanding for a \$1.1 billion transportation hub designed to store Russian grain and ship it to China.¹²¹ According to Russia’s minister of agriculture, the hub will provide China with 2-3 million metric tons of grain per year, a little more than half of the wheat the United States exported to China in 2013.¹²² This April, Chinese safety regulators approved Russian wheat for entry into the Chinese market, creating a new competitor for U.S. firms.¹²³ Russian officials have stated that they plan on shipping 500,000 metric tons of wheat and barley into China in 2016.¹²⁴

For inquiries, please contact a member of our economics and trade team (Nargiza Salidjanova, nsalidjanova@uscc.gov; Michelle Ker, mker@uscc.gov; Katherine Koleski, kkoleski@uscc.gov; Sean O’Connor, socconnor@uscc.gov; or Matt Snyder, msnyder@uscc.gov).

Disclaimer: The U.S.-China Economic and Security Review Commission was created by Congress to report on the national security implications of the bilateral trade and economic relationship between the United States and the People's Republic of China. For more information, visit www.uscc.gov or join the Commission on Facebook!

This report is the product of professional research performed by the staff of the U.S.-China Economic and Security Review Commission, and was prepared at the request of the Commission to support its deliberations. Posting of the report to the Commission's website is intended to promote greater public understanding of the issues addressed by the Commission in its ongoing assessment of U.S.-China economic relations and their implications for U.S. security, as mandated by Public Law 106-398 and Public Law 113-291. However, it does not necessarily imply an endorsement by the Commission, any individual Commissioner, or the Commission's other professional staff, of the views or conclusions expressed in this staff research report.

Endnotes

- ¹ James T. Areddy and Valentina Pop, "G-20 Leaders Challenged to Find Effective Plan to Reignite World Growth," *Wall Street Journal*, September 4, 2016. www.wsj.com/articles/pointed-words-over-chinas-steel-overproduction-at-g-20-1472998523; Jane Perlez and Yufan Huang, "China, Eager to Host Elite Club, Primps for G-20 Meeting," *New York Times*, August 30, 2016. www.nytimes.com/2016/08/31/world/asia/china-g20-summit-hangzhou.html.
- ² G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ³ Scott Kennedy, "The Hangzhou G20 Summit: The Ambiguous Gap between Aspiration and Action," *Center for Strategic and International Studies*, September 7, 2016. <https://www.csis.org/analysis/hangzhou-g20-summit-ambiguous-gap-between-aspiration-and-action>; Caitlin Bryne, "China's G20 Summit Was Big on Show but Short on Substance," *Guardian*, September 5, 2016. <https://www.theguardian.com/world/2016/sep/06/chinas-g20-summit-was-big-on-show-but-short-on-substance>.
- ⁴ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ⁵ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ⁶ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ⁷ White House Office of the Press Secretary, *Fact Sheet: The 2016 G-20 Summit in Hangzhou, China*, September 5, 2016. <https://www.whitehouse.gov/the-press-office/2016/09/05/fact-sheet-2016-g-20-summit-hangzhou-china>; G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ⁸ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ⁹ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ¹⁰ G20, "G20 Leaders' Communique Hangzhou Summit," September 4–5, 2016. www.g20.org/English/Dynamic/201609/t20160906_3396.html.
- ¹¹ White House Office of the Press Secretary, *U.S.-China Climate Change Cooperation Outcomes*, September 3, 2016. <https://www.whitehouse.gov/the-press-office/2016/09/03/fact-sheet-us-china-cooperation-climate-change>.
- ¹² White House Office of the Press Secretary, *U.S. Fact Sheet for President Obama's Bilateral Meeting with President Xi Jinping*, September 3, 2016. <https://www.whitehouse.gov/the-press-office/2016/09/03/us-fact-sheet-president-obamas-bilateral-meeting-president-xi-jinping>.
- ¹³ White House Office of the Press Secretary, *Statement by National Security Council Spokesperson Ned Price on U.S.-China Enhanced Control Measures for Fentanyl*, September 3, 2016. <https://www.whitehouse.gov/the-press-office/2016/09/03/statement-national-security-council-spokesperson-ned-price-us-china>.
- ¹⁴ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ¹⁵ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ¹⁶ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ¹⁷ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ¹⁸ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ¹⁹ Shawn Donnan, "US Takes China to WTO over Farm Subsidies," *Financial Times*, September 13, 2016. <https://www.ft.com/content/8f791bfe-79c6-11e6-97ae-647294649b28>; Office of the U.S. Trade Representative, *United States Challenges*

- Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ²⁰ Office of the U.S. Trade Representative, *United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn*, September 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- ²¹ Jeff Wilson and Mario Parker, “U.S.-China Trade Friction Shifts to Livestock-Feed Ingredient,” Bloomberg, September 23, 2016. <http://www.bloomberg.com/news/articles/2016-09-23/u-s-china-trade-friction-shifts-to-livestock-feed-ingredient>.
- ²² Jeff Wilson and Mario Parker, “U.S.-China Trade Friction Shifts to Livestock-Feed Ingredient,” Bloomberg, September 23, 2016. <http://www.bloomberg.com/news/articles/2016-09-23/u-s-china-trade-friction-shifts-to-livestock-feed-ingredient>.
- ²³ Renewable Fuels Association, “Statement from U.S. DDGS Organizations on China Preliminary Determination in Countervailing Duties Investigation,” September 28, 2016. <http://ethanolrfa.org/2016/09/statement-from-u-s-ddgs-organizations-on-china-preliminary-determination-in-countervailing-duties-investigation/>.
- ²⁴ Jeff Wilson and Mario Parker, “U.S.-China Trade Friction Shifts to Livestock-Feed Ingredient,” Bloomberg, September 23, 2016. <http://www.bloomberg.com/news/articles/2016-09-23/u-s-china-trade-friction-shifts-to-livestock-feed-ingredient>; Niu Shuping and David Stanway, “China Jan Distillers’ Grains Imports up Fourfold Y/Y – Customs,” Reuters, February 22, 2016. <http://www.reuters.com/article/china-economy-trade-idUSL3N1612JS>,
- ²⁵ U.S. Department of Agriculture, Office of Communications, *China Moves to Reopen Market to U.S. Beef*, September 22, 2016. <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2016/09/0204.xml&contentidonly=true>.
- ²⁶ Phoebe Sedgman and Lydia Mulvany, “China Ends Complete Ban on Beef from U.S. as Imports Explode,” Bloomberg, September 22, 2016. <http://www.bloomberg.com/news/articles/2016-09-22/china-removes-ban-on-some-u-s-beef-imports-with-conditions-itduo0qv>.
- ²⁷ U.S. Department of Agriculture, Office of Communications, *China Moves to Reopen Market to U.S. Beef*, September 22, 2016. <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2016/09/0204.xml&contentidonly=true>; Phoebe Sedgman and Lydia Mulvany, “China Ends Complete Ban on Beef from U.S. as Imports Explode,” Bloomberg, September 22, 2016. <http://www.bloomberg.com/news/articles/2016-09-22/china-removes-ban-on-some-u-s-beef-imports-with-conditions-itduo0qv>.
- ²⁸ Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.
- ²⁹ Bank of International Settlements, “Long Series on Total Credit to the Non-Financial Sectors,” September 8, 2016.
- ³⁰ Ambrose Evans-Pritchard, “Fitch Reveals the \$2 Trillion Black Hole in China’s Economy That Heralds a Lost Decade,” *Telegraph*, September 22, 2016. <http://www.telegraph.co.uk/business/2016/09/22/fitch-warns-bad-debts-in-china-are-ten-times-official-claims-sta/>.
- ³¹ Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.
- ³² Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.
- ³³ Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.
- ³⁴ Bank of International Settlements, “Credit-to-GDP Gap and Underlying Input Data,” September 8, 2016.
- ³⁵ Ambrose Evans-Pritchard, “Fitch Reveals the \$2 Trillion Black Hole in China’s Economy That Heralds a Lost Decade,” *Telegraph*, September 22, 2016. <http://www.telegraph.co.uk/business/2016/09/22/fitch-warns-bad-debts-in-china-are-ten-times-official-claims-sta/>.
- ³⁶ China Banking Regulatory Commission via CEIC.
- ³⁷ China Banking Regulatory Commission via CEIC.
- ³⁸ Cathy Zhang, “China Continues its Love Affair with Credit,” *South China Morning Post*, September 26, 2016. <http://www.scmp.com/business/global-economy/article/2022593/china-continues-its-love-affair-credit>.
- ³⁹ Ambrose Evans-Pritchard, “Fitch Reveals the \$2 Trillion Black Hole in China’s Economy That Heralds a Lost Decade,” *Telegraph*, September 22, 2016. <http://www.telegraph.co.uk/business/2016/09/22/fitch-warns-bad-debts-in-china-are-ten-times-official-claims-sta/>.
- ⁴⁰ Ambrose Evans-Pritchard, “Fitch Reveals the \$2 Trillion Black Hole in China’s Economy that Heralds a Lost Decade,” *Telegraph*, September 22, 2016. <http://www.telegraph.co.uk/business/2016/09/22/fitch-warns-bad-debts-in-china-are-ten-times-official-claims-sta/>.
- ⁴¹ International Monetary Fund, *The People’s Republic of China: 2016 Article IV Consultation*, August 2016, 8-9, 22. <https://www.imf.org/external/pubs/ft/scr/2016/cr16270.pdf>.
- ⁴² Yue Wang, “Why McDonald’s & KFC Are Turning to Local Investors to Survive in China,” *Forbes*, September 9, 2016. <http://www.forbes.com/sites/ywang/2016/09/09/why-mcdonalds-kfc-are-turning-to-local-investors-to-survive-in-china/#6f5aa0965768>.
- ⁴³ Tess Stynes, “Yum Board Approves Spinoff Plan, Raises Dividend 11%,” *Wall Street Journal*, September 26, 2016. <http://www.wsj.com/articles/yum-board-approves-spinoff-plan-raises-dividend-11-1474901536>; Yum! Brands, “Yum! in the News,” October 20, 2015. <http://www.yum.com/press-releases/yum-brands-announces-intention-to-separate-into-two-publicly-traded-companies-china-division-to-become-independent-company-focused-on-growth-in-mainland-china-yum-brands-to-become-global-pu/>.
- ⁴⁴ Qu Yunxu et al., “Yum Brands, McDonald’s Explore China Pullback,” Caixin, September 13, 2016. <http://english.caixin.com/2016-09-13/100988123.html>.
- ⁴⁵ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁴⁶ Qu Yunxu et al., “Yum Brands, McDonald’s Explore China Pullback,” Caixin, September 13, 2016. <http://english.caixin.com/2016-09-13/100988123.html>.
- ⁴⁷ Laurie Burkitt, “China Isn’t the Easy Market It Once Was for Fast-Food Chains,” *Wall Street Journal*, October 20, 2015. <http://www.wsj.com/articles/china-isnt-the-easy-market-it-once-was-for-fast-food-chains-1445359105>.
- ⁴⁸ Bloomberg News, “China Starts to Lose its Taste for McDonald’s and KFC,” August 3, 2016. <http://www.bloomberg.com/news/articles/2016-08-03/china-starts-to-loses-its-taste-for-mcdonald-s-and-kfc>.
- ⁴⁹ Qu Yunxu et al., “Yum Brands, McDonald’s Explore China Pullback,” Caixin, September 13, 2016. <http://english.caixin.com/2016-09-13/100988123.html>.
- ⁵⁰ Qu Yunxu et al., “Yum Brands, McDonald’s Explore China Pullback,” Caixin, September 13, 2016. <http://english.caixin.com/2016-09-13/100988123.html>.

- ⁵¹ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁵² Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁵³ Laurie Burkitt, “KFC, Pizza Hut Seek to Stage China Comeback,” *Wall Street Journal*, October 21, 2015. <http://www.wsj.com/articles/kfc-pizza-hut-seek-to-stage-a-comeback-in-china-1445433478>; Junheng Li, “Too-Fast Food: Behind the Scene of Yum! Brand China Slump,” *Forbes*, December 6, 2012. <http://www.forbes.com/sites/junhli/2012/12/06/too-fast-food-behind-the-scene-of-yum-brand-china-slump/#18db95396b8f>.
- ⁵⁴ Brian Solomon, “KFC, Yum! Dragged Down by Chinese Food Safety Scandal,” *Forbes*, October 7, 2014. <http://www.forbes.com/sites/briansolomon/2014/10/07/kfc-yum-dragged-down-by-chinese-food-safety-scandal/#2621ef4e1944>.
- ⁵⁵ Laurie Burkitt, “KFC, Pizza Hut Seek to Stage China Comeback,” *Wall Street Journal*, October 21, 2015. <http://www.wsj.com/articles/kfc-pizza-hut-seek-to-stage-a-comeback-in-china-1445433478>.
- ⁵⁶ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁵⁷ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁵⁸ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁵⁹ Laurie Burkitt, “China Isn’t the Easy Market It Once Was for Fast-Food Chains,” *Wall Street Journal*, October 20, 2015. <http://www.wsj.com/articles/china-isnt-the-easy-market-it-once-was-for-fast-food-chains-1445359105>.
- ⁶⁰ Fan Yu, “McDonald’s Follows Yum Brands, Prepares China Exit,” *Epoch Times*, September 18, 2016. <http://www.theepochtimes.com/n3/2157486-mcdonalds-follows-yum-brands-prepares-china-exit/>.
- ⁶¹ Adam Minter, “Fast Food Loses its Sizzle in China,” *Bloomberg*, October 22, 2015. <https://www.bloomberg.com/view/articles/2015-10-22/u-s-fast-food-chains-lose-their-sizzle-in-china>.
- ⁶² United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ⁶³ United States Department of Agriculture Foreign Agricultural Service, “Grain: World Markets and Trade,” September 2016. <http://apps.fas.usda.gov/psdonline/circulars/grain.pdf>.
- ⁶⁴ Food and Agricultural Organization of the United Nations, “China Maintains the 2015 Minimum Rice Purchase Prices at Last Year’s Level,” June 2, 2015., <http://www.fao.org/giews/food-prices/food-policies/detail/en/c/276921/>; Lucy Hornby, “China Pledges to End Corn Stockpiling,” *Financial Times*, March 29, 2016. <https://www.ft.com/content/15b0fb4a-f59e-11e5-803c-d27c7117d132>; North Dakota Grain Growers Association, “Wheat Growers Welcome Trade Enforcement Action on Chinese Market Support Programs,” September 13, 2016. <https://www.ndgga.com/2016/09/13/wheat-growers-trade-enforcement-action-chinese-market-support-programs/>.
- ⁶⁵ Lucy Hornby, “China’s Rotten Grains Highlight Troubled Policy,” *Financial Times*, April 19, 2015. <https://www.ft.com/content/6e8581ae-e669-11e4-afb7-00144feab7de>.
- ⁶⁶ United States Department of Agriculture, “China Grain and Feed Update,” February 5, 2016. http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Update_Beijing_China%20-%20Peoples%20Republic%20of_2-5-2016.pdf.
- ⁶⁷ Lucy Hornby, “China Corn Shortages Loom Despite Bulging Silos,” *Financial Times*, July 11, 2016. <https://www.ft.com/content/a8413148-4727-11e6-8d68-72e9211e86ab>.
- ⁶⁸ “Agricultural Subsidies in Key Developing Countries: November 2014 Update,” DTP Associates, LLP, November 2014. [http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/\\$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement](http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement).
- ⁶⁹ “Agricultural Subsidies in Key Developing Countries: November 2014 Update,” DTP Associates, LLP, November 2014. [http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/\\$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement](http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement).
- ⁷⁰ “Agricultural Subsidies in Key Developing Countries: November 2014 Update,” DTP Associates, LLP, November 2014. [http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/\\$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement](http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement).
- ⁷¹ “Agricultural Subsidies in Key Developing Countries: November 2014 Update,” DTP Associates, LLP, November 2014. [http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/\\$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement](http://www.uswheat.org/studiesAnalysis/doc/0FFFC46C31AA7FED852580140060275D/$File/Dev%20Co%20Subs%20Update%20FINAL%201-28.docx.pdf?OpenElement).
- ⁷² North Dakota Grain Growers Association, “Wheat Growers Welcome Trade Enforcement Action on Chinese Market Support Programs,” September 13, 2016. <https://www.ndgga.com/2016/09/13/wheat-growers-trade-enforcement-action-chinese-market-support-programs/>.
- ⁷³ United States Department of Agriculture, *China’s Growing Demand for Agricultural Imports*, February 2015, 10. <http://www.ers.usda.gov/media/1784488/eib136.pdf>.
- ⁷⁴ “U.S. Wheat Industry Leader: More Steps Needed to Counter Chinese Policies,” *Inside U.S. Trade*, October 5, 2016. <http://insidetrade.com/daily-news/us-wheat-industry-leader-more-steps-needed-counter-chinese-policies>.
- ⁷⁵ United States Department of Agriculture, *China’s Growing Demand for Agricultural Imports*, February 2015, 10. <http://www.ers.usda.gov/media/1784488/eib136.pdf>.
- ⁷⁶ United States Department of Agriculture, *China’s Growing Demand for Agricultural Imports*, February 2015, 10. <http://www.ers.usda.gov/media/1784488/eib136.pdf>.
- ⁷⁷ United States Department of Agriculture, *China’s Growing Demand for Agricultural Imports*, February 2015, 10. <http://www.ers.usda.gov/media/1784488/eib136.pdf>.

- ⁷⁸ United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ⁷⁹ “China Raises Rice Purchase Prices for 2012,” *China Daily*, February 2, 2012. http://www.chinadaily.com.cn/bizchina/2012-02/02/content_14526921.htm.
- ⁸⁰ Sameer Mohindru, “China Rice Imports Set to Remain High,” *Wall Street Journal*, September 29, 2013. <http://www.wsj.com/articles/SB10001424052702304373104579105241337713528>.
- ⁸¹ United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ⁸² United States Department of Agriculture, “China Continues to Import Rice at Record Pace,” February 23, 2015. <http://www.ers.usda.gov/data-products/chart-gallery/detail.aspx?chartId=52010>.
- ⁸³ United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ⁸⁴ United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ⁸⁵ Bill Tomson, “China Opens Rice Market to the U.S.” *AgriPulse*, January 22, 2016. <http://www.agri-pulse.com/China-opens-rice-market-to-the-US-01222016.asp#.VqK-4rIMsqs.twitter>.
- ⁸⁶ “U.S.-China Reach Agreement on Phytosanitary Protocol for Rice Exports,” *USA Rice Daily*, January 22, 2016. <https://usarice.com/news-resources/daily/usa-rice-daily/2016/01/22/u.s.-china-reach-agreement-on-phytosanitary-protocol-for-rice-exports>.
- ⁸⁷ Megan Durisin, “Forget Selling Tea to China, U.S. to Sell Rice to No. 1 User,” *Bloomberg*, September 14, 2015. <http://www.bloomberg.com/news/articles/2015-09-14/china-rice-market-to-open-up-to-u-s-imports-with-trade-accord>.
- ⁸⁸ United States Department of Agriculture, “China Continues to Import Rice at Record Pace,” February 23, 2015. <http://www.ers.usda.gov/data-products/chart-gallery/detail.aspx?chartId=52010>.
- ⁸⁹ “U.S.-China Reach Agreement on Phytosanitary Protocol for Rice Exports,” *USA Rice Daily*, January 22, 2016. <https://usarice.com/news-resources/daily/usa-rice-daily/2016/01/22/u.s.-china-reach-agreement-on-phytosanitary-protocol-for-rice-exports>.
- ⁹⁰ Didi Kirsten Tatlow, “Cadmium Rice’ Is China’s Latest Food Scandal,” *New York Times*, May 20, 2013. <http://rendezvous.blogs.nytimes.com/2013/05/20/cadmium-rice-is-chinas-latest-food-scandal/>.
- ⁹¹ “Cadmium Rice: Heavy Metal Pollution of China’s Rice Crops,” *Greenpeace*, April 24, 2014. <http://www.greenpeace.org/eastasia/publications/reports/toxics/2014/cadmium-rice-heavy-metal/>.
- ⁹² Comtrade.un.org, “United Nations Commodity Trade Database,” <http://comtrade.un.org/db/ce/ceSearch.aspx>.
- ⁹³ Kim Dillivan, “U.S. Corn Exports to China,” *IGrow*, January 14, 2015. <http://igrow.org/agronomy/corn/u.s.-corn-exports-to-china/>.
- ⁹⁴ Kim Dillivan, “U.S. Corn Exports to China,” *IGrow*, January 14, 2015. <http://igrow.org/agronomy/corn/u.s.-corn-exports-to-china/>.
- ⁹⁵ Randy Gordon, “NGFA Estimates Up to \$2.9 Billion Loss to U.S. Corn, Soy in Aftermath of Trade Disruption with China Over Detection of Unapproved Syngenta Agrisure Viptera MIR 162 Corn,” *National Grain and Feed Association*, April 21, 2014. <https://www.ngfa.org/news/biotechnology/ngfa-estimates-up-to-2-9-billion-loss-to-u-s-corn-soy-in-aftermath-of-trade-disruption-with-china-over-detection-of-unapproved-syngenta-agrisure-viptera-mir-162-corn-2/>; Megan Durisin, “U.S. Grain Losses Seen Up to \$6.3 Billion on China Ban,” *Bloomberg*, April 16, 2014. <http://www.bloomberg.com/news/articles/2014-04-16/u-s-group-says-losses-may-be-6-3-billion-on-china-corn>.
- ⁹⁶ Chuin-Wei Yap, “Ban of Not, GMO Corn May Already Be On China’s Table,” *New York Times*, January 7, 2016. <http://blogs.wsj.com/chinarealtime/2016/01/07/ban-or-not-gmo-corn-may-already-be-on-chinas-table/>.
- ⁹⁷ Roman Olearchyk, “Ukraine Agrees \$3 Bn Loan-For-Corn Deal,” *Financial Times*, September 19, 2012. <https://www.ft.com/content/79bc2174-0276-11e2-8cf8-00144feabdc0>.
- ⁹⁸ Comtrade.un.org, “United Nations Commodity Trade Database,” <http://comtrade.un.org/db/ce/ceSearch.aspx>.
- ⁹⁹ Shannon Tiezzi, “China’s Agricultural Deals with Ukraine in Jeopardy,” *Diplomat*, February 28, 2014. <http://thediplomat.com/2014/02/chinas-agricultural-deals-with-ukraine-in-jeopardy/>.
- ¹⁰⁰ “Update 1-China Orders Over 600,000 T Ukrainian Corn, Snubs U.S. Supplies,” *Reuters*, March 17, 2015. <http://www.reuters.com/article/china-corn-ukraine-idUSL3NOWJ1HA20150317>.
- ¹⁰¹ Comtrade.un.org, “United Nations Commodity Trade Database,” <http://comtrade.un.org/db/ce/ceSearch.aspx>.
- ¹⁰² Emiko Terazono, “Ukraine Set to Become Top Corn Exporter to China in First Half,” *Financial Times*, July 6, 2015. <https://www.ft.com/content/989c82ba-20cc-11e5-ab0f-6bb9974f25d0>.
- ¹⁰³ Comtrade.un.org, “United Nations Commodity Trade Database,” <http://comtrade.un.org/db/dqBasicQueryResults.aspx?px=HS&cc=1005&r=804&p=156&rg=2&y=2015,2014,2013,2012,2011&so=8>.
- ¹⁰⁴ Lucy Hornby, “China Pledges to End Corn Stockpiling,” *Financial Times*, March 29, 2016. <https://www.ft.com/content/15b0fb4a-f59e-11e5-803c-d27c7117d132>.
- ¹⁰⁵ Lucy Hornby, “China’s Rotten Grains Highlight Troubled Policy,” *Financial Times*, April 19, 2015. <https://www.ft.com/content/6e8581ae-e669-11e4-afb7-00144feab7de>.
- ¹⁰⁶ Lucy Hornby, “China Corn Shortages Loom Despite Bulging Silos,” *Financial Times*, July 11, 2016. <https://www.ft.com/content/a8413148-4727-11e6-8d68-72e9211e86ab>.
- ¹⁰⁷ Lucy Hornby, “China Corn Shortages Loom Despite Bulging Silos,” *Financial Times*, July 11, 2016. <https://www.ft.com/content/a8413148-4727-11e6-8d68-72e9211e86ab>.
- ¹⁰⁸ Lucy Hornby, “China Corn Shortages Loom Despite Bulging Silos,” *Financial Times*, July 11, 2016. <https://www.ft.com/content/a8413148-4727-11e6-8d68-72e9211e86ab>.

-
- ¹⁰⁹ Lucy Hornby, “China’s Rotten Grains Highlight Troubled Policy,” *Financial Times*, April 19, 2015. <https://www.ft.com/content/6e8581ae-e669-11e4-afb7-00144feab7de>.
- ¹¹⁰ Lucy Hornby, “China Pledges to End Corn Stockpiling,” *Financial Times*, March 29, 2016. <https://www.ft.com/content/15b0fb4a-f59e-11e5-803c-d27c7117d132>.
- ¹¹¹ United States Department of Agriculture, “World Agricultural Production,” September 2016. <http://apps.fas.usda.gov/psdonline/circulars/production.pdf>.
- ¹¹² United States Department of Agriculture, “Grain: World Markets and Trade,” September 2016. <http://apps.fas.usda.gov/psdonline/circulars/grain.pdf>.
- ¹¹³ North Dakota Grain Growers Association, “Wheat Growers Welcome Trade Enforcement Action on Chinese Market Support Programs,” September 13, 2016. <https://www.ndgga.com/2016/09/13/wheat-growers-trade-enforcement-action-chinese-market-support-programs/>.
- ¹¹⁴ Office of the United States Trade Representative, “United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn,” September, 2016. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>; North Dakota Grain Growers Association, “Wheat Growers Welcome Trade Enforcement Action on Chinese Market Support Programs,” September 13, 2016. <https://www.ndgga.com/2016/09/13/wheat-growers-trade-enforcement-action-chinese-market-support-programs/>.
- ¹¹⁵ North Dakota Grain Growers Association, “Wheat Growers Welcome Trade Enforcement Action on Chinese Market Support Programs,” September 13, 2016. <https://www.ndgga.com/2016/09/13/wheat-growers-trade-enforcement-action-chinese-market-support-programs/>.
- ¹¹⁶ United States Department of Agriculture Foreign Agricultural Service, “Grain: World Markets and Trade,” September 2016. <http://apps.fas.usda.gov/psdonline/circulars/grain.pdf>.
- ¹¹⁷ United States Department of Agriculture, “USDA Revision of China Grain Stock Estimates,” May 10, 2001. http://www.ers.usda.gov/media/904910/wrs012k_002.pdf.
- ¹¹⁸ United States Department of Agriculture Foreign Agricultural Service, “Grain: World Markets and Trade,” September 2016. <http://apps.fas.usda.gov/psdonline/circulars/grain.pdf>.
- ¹¹⁹ United States Department of Agriculture Foreign Agricultural Service, “Production, Supply, and Distribution Online,” <http://apps.fas.usda.gov/psdonline/psdquery.aspx>.
- ¹²⁰ Niu Shuping, “Exclusive – China May Become Top Wheat Importer After Crops Ruined, Reuters, July 17, 2013. <http://uk.reuters.com/article/uk-china-wheat-idUKBRE96G00020130717>.
- ¹²¹ Tiffany Agard, “Russian and China Partner on 30 Grain Hubs,” *Oil Seed And Grain*, June 27, 2016. <http://www.oilseedandgrain.com/single-post/2016/06/27/Russia-and-China-Partner-on-30-Grain-Hubs>.
- ¹²² “Russia Plans to Supply 500,000 Tonnes of Grain to China in 2016,” Reuters, June 25, 2016. <http://www.straitstimes.com/world/europe/russia-plans-to-supply-500000-tonnes-of-grain-to-china-in-2016>.
- ¹²³ “China to Import More Russian Wheat,” *RT*, April 27, 2016. <https://www.rt.com/business/341080-russia-wheat-exports-china/>.
- ¹²⁴ “Russia Plans to Supply 500,000 Tonnes of Grain to China in 2016,” Reuters, June 25, 2016. <http://www.straitstimes.com/world/europe/russia-plans-to-supply-500000-tonnes-of-grain-to-china-in-2016>.